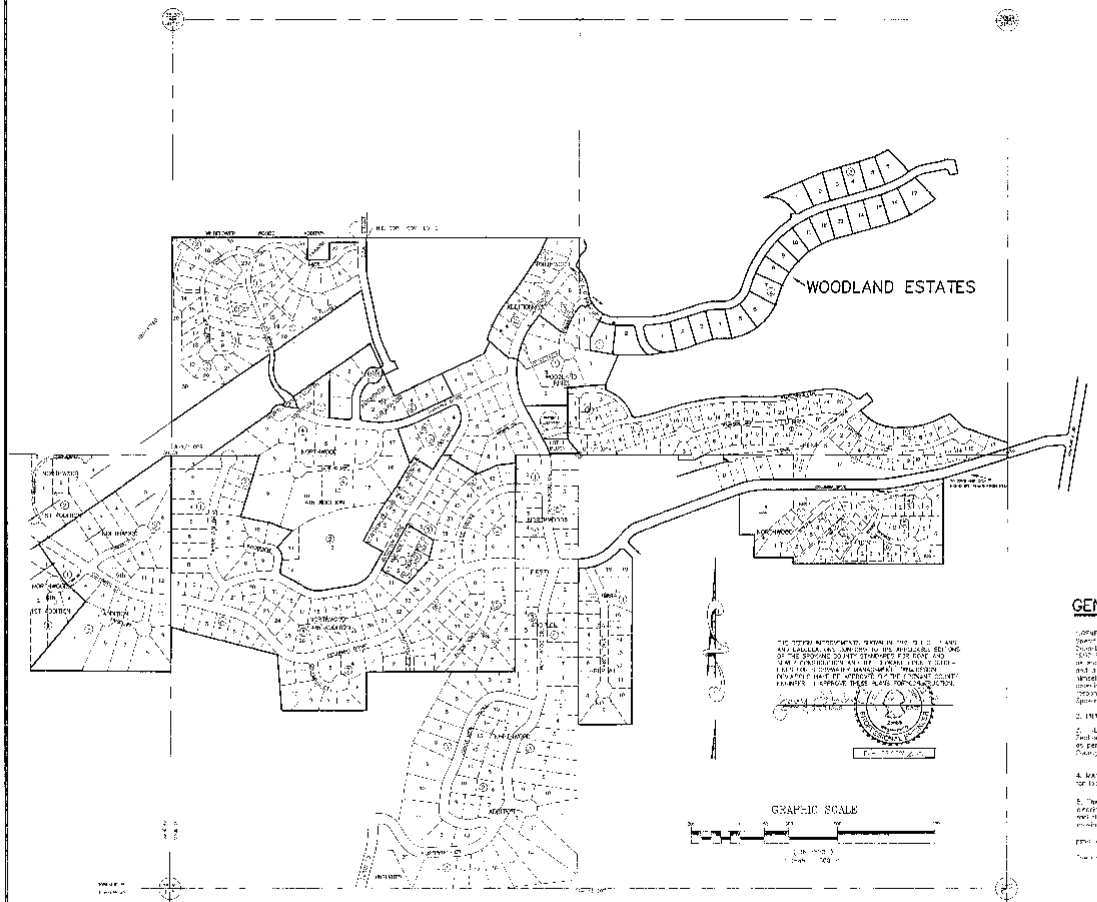

SECTION 31, T. 26 N., R. 44 E. W. M.

VICINITY MAP

CONSTRUCTION PLANS

SHEET INDEX

1	TITLE
2	PLAT DRAWING
3	OVERALL FACILITIES DRAWING
4	WOODLAND PARK DRIVE STA 10+00 TO STA 24+50
5	WOODLAND PARK DRIVE STA 24+50 TO STA 30+50
6	WOODLAND PARK DRIVE STA 10+00 TO STA 20+00
7	WOODLAND PARK DRIVE STA 23+00 TO STA 29+00
8	WOODLAND PARK DRIVE STA 29+00 TO STA 35+00
9A	DRAINAGE DITCH – RID 0+00 TO 2+50
10	DRAINAGE DITCH – RID 0+00 TO 2+50
10	VISTA PARK DRIVE STREET PLAN & PROFILE
11	VISTA DITCH 2+00 TO 16
12	SUNNING LANE (CAS 1 STREET PLAN & PROFILE
13	SUNNING LANE (CAS 1 STREET PLAN & PROFILE
13	WOODLAND ESTATES GRADING PLAN
14	WOODLAND ESTATES CROSSING PLAN
15	DETAIL SHEET
16	DETAIL SHEET
17	DETAIL SHEET
18	DETAIL SHEET

* DETAIL – HAND DRAWN & ASSOCIATED

(CLOUD) INFORMATION REPRESENTS DESIGN CHANGES WHICH AMEND THE PREVIOUS 1994 APPROVED CONSTRUCTION PLANS

GENERAL NOTES

GENERAL: All construction work shall be in accordance with the Standard Specifications for Road, Bridge, and Municipal Construction as adopted by the Washington State Department of Transportation (as The Washington State Chapter of the American Public Works Association, 5th Edition, as adopted and revised by the Spokane County Public Works Department). Standard details shall be in accordance with WSDOT Standard Specifications for Road and Bridge Construction. These plans and specifications, as shown and indicated, represent the entire scope of work at the work location. The contractor shall be responsible to familiarize himself with the actual site conditions and factors affecting the work. All contractor must be familiar and comfortable with Spokane County to do whatever traffic control and inspection requirements. The contractor shall be responsible for closure of required streets. Traffic control requirements shall be as determined by the Spokane County Traffic Department.

2. PIPE: All storm drain pipe shall be CPP [illegible] in accordance with the referenced Standard Specifications.

3. UTILITY LOCATION AND CONFLICTS: All utility relocation and conflicts shall conform to WSDOT Section 1[illegible]. All trees, shall consist of non-wind breaking material (wood stakes the size and [illegible] as per WSDOT Section [illegible]). Connection of trees is optional and shall be [illegible] Spokane County Engineer's requirements.

4. MARKERS: [illegible] shall be [illegible] in accordance with the Spokane County Traffic Engineer's [illegible] Type [illegible] or [illegible] as specified per Type 2 [illegible] construction locations and [illegible] per [illegible].

5. The contractor shall install the erosion control [illegible] as shown on these plans, prior to commencing the site or grading work. Control measures shall be maintained throughout the duration of the project. The erosion control [illegible] shall be removed only after the site has been stabilized and approved by the [illegible].

[illegible] APPROVAL

[illegible]

[illegible] 1/22-98

[illegible]

STORHAUG ENGINEERING
E. 9616 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
STREET & DRAINAGE
IMPROVEMENTS

DRAWN BY: [illegible]
SCALE: [illegible]
DATE: 10/23/98
JOB NO.: 98-[illegible]

SHEET 1 OF 18
COVER

LEGEND

Existing Contours 5' Interval

Proposed Contours 2' Interval

NATURAL DRAINAGE CHANNEL

WOODLAND PARK DR.

WOODLAND PINES

COLUMBIA HEIGHTS

COLUMBIA PARK REPLAT #4

COLUMBIA DRIVE

STATES LANE

ARGONNE ROAD

GRAPHIC SCALE

CALL BEFORE YOU DIG 456-8000

CONSTRUCTION PLANS

STORHAUG ENGINEERING

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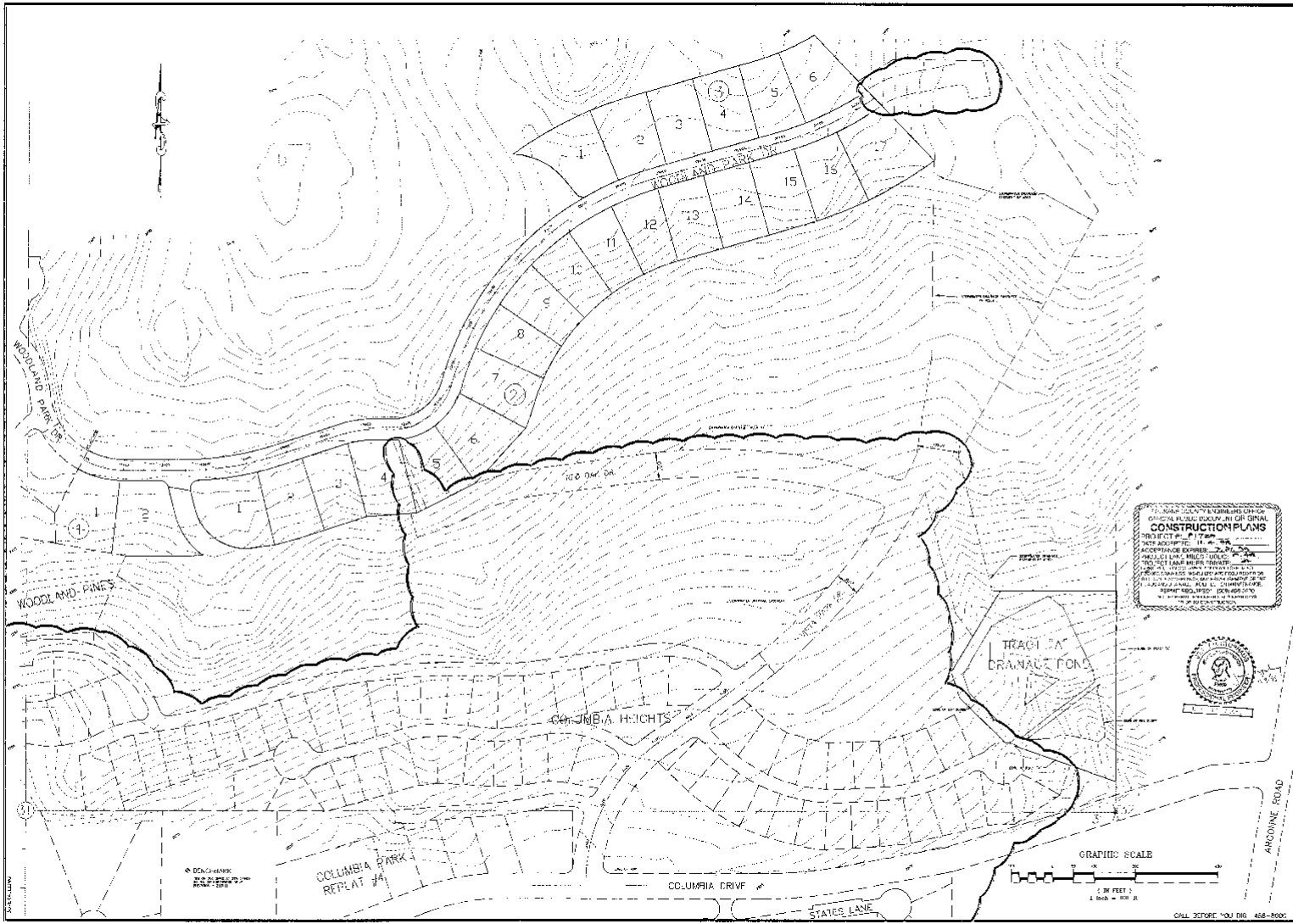
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
GRADING PLAN

SHEET
13 OF 18
GRADING



STORHAUG ENGINEERING
E. 9818 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
OVERALL FACILITIES LAYOUT

SHEET
3 OF 18
OVERALL

CONSTRUCTION NOTES

[illegible]

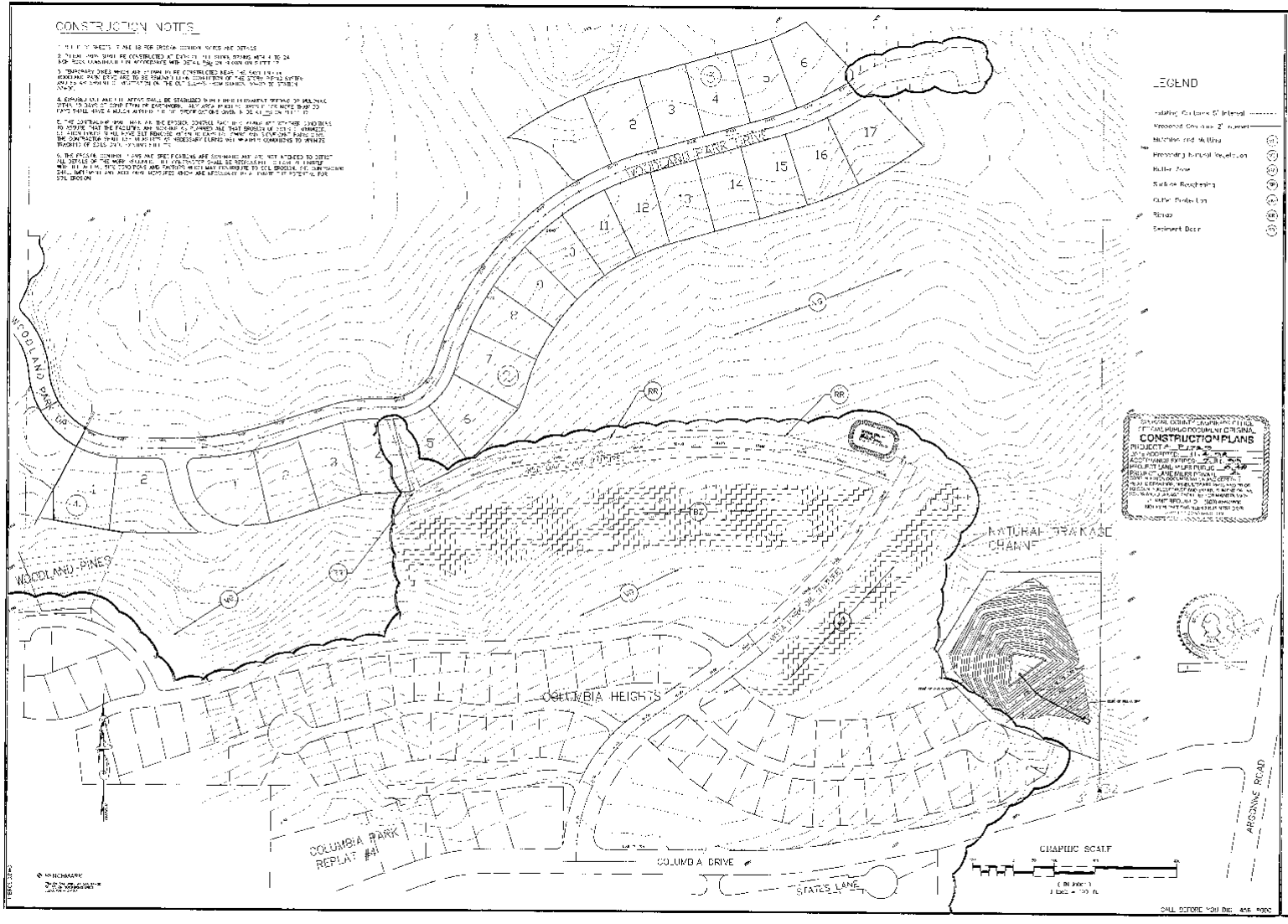
2. [illegible] SHALL BE CONSTRUCTED AT [illegible] STRAWS AND 4 TO 24 INCH ROCK MINIMUM IN ACCORDANCE WITH DETAIL [illegible] SHOWN ON SHEET [illegible]

3. TEMPORARY DIKES WHICH ARE TO BE REMOVED NEAR THE [illegible] ROADWAY PAVEMENT ARE TO BE REMOVED [illegible] CONSTRUCTION OF THE [illegible] ROADWAY [illegible]

4. [illegible] SHALL BE STABILIZED [illegible] IMMEDIATELY FOLLOWING [illegible] [illegible] SHALL HAVE A MULCH APPLIED [illegible]

5. THE SOIL EROSION AND [illegible] SHALL BE EROSION CONTROL [illegible] THE [illegible] TO ASSURE THAT THE FACILITIES ARE MAINTAINED AS PLANNED AND THAT EROSION OF SOIL [illegible] THE CONTRACTOR SHALL KEEP SILT FENCE [illegible] ON SITE [illegible] THE CONTRACTOR SHALL [illegible] NECESSARY REPAIRS [illegible] TO PREVENT [illegible]

6. THE EROSION CONTROL [illegible] ARE SPECIFICALLY [illegible] AND ARE NOT INTENDED TO DETAIL ALL DETAILS OF THE WORK [illegible] THE CONTRACTOR SHALL BE RESPONSIBLE [illegible] WITH [illegible] AND PROVIDE ADDITIONAL MEASURES REQUIRED TO CONTROL EROSION [illegible] AND ANY ADDITIONAL [illegible] WHICH ARE NECESSARY [illegible] POTENTIAL FOR SOIL EROSION



STORHAUG ENGINEERING
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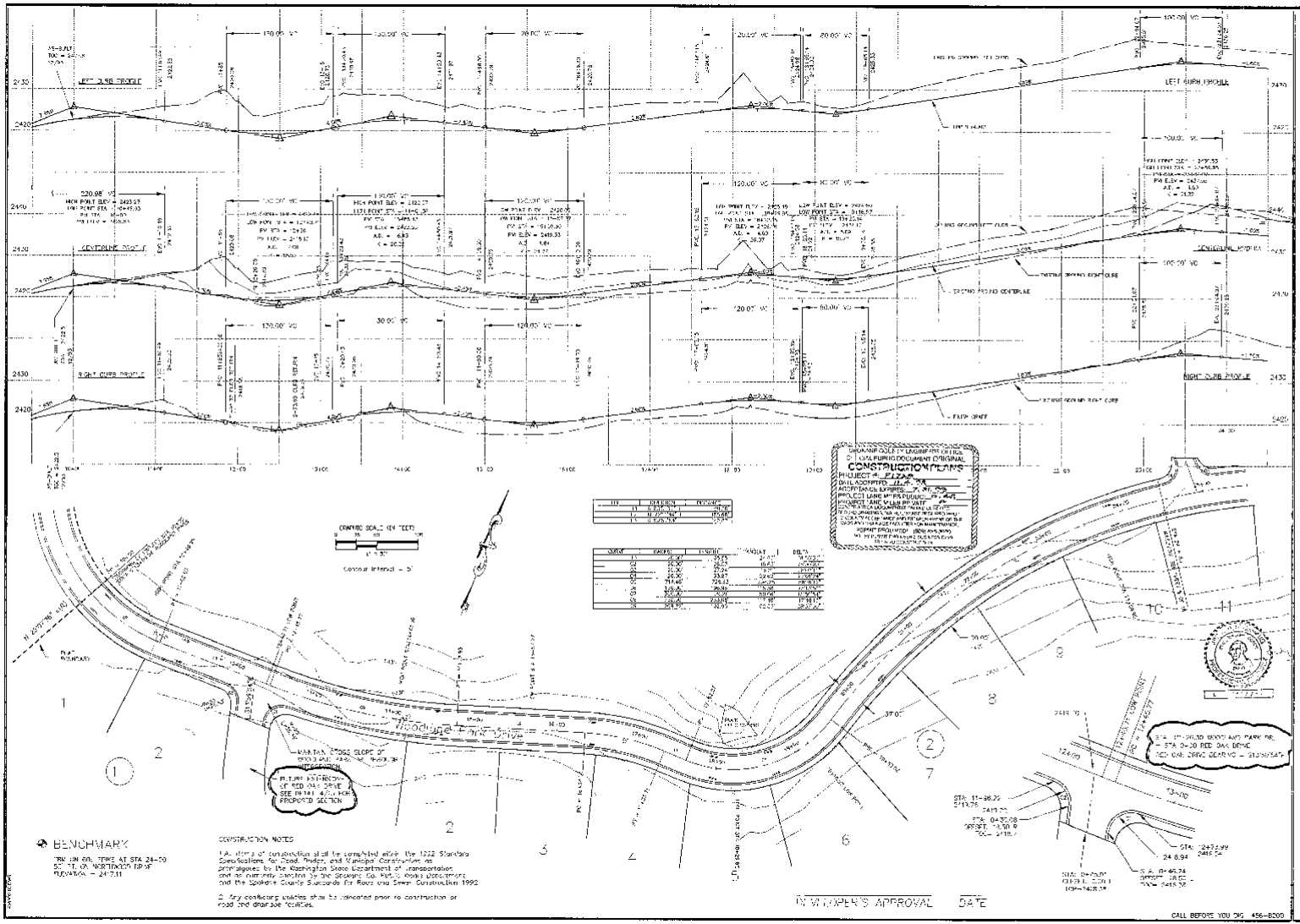
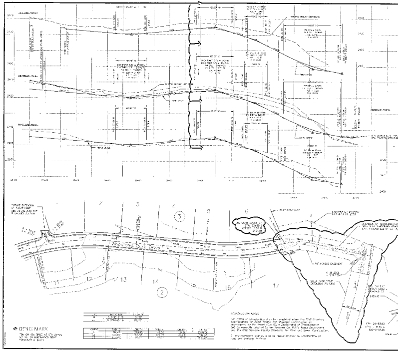
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
EROSION AND SEDIMENTATION PLAN

SHEET 14 OF 15
EROSION


LEFT CURB PROFILE
CENTERLINE PROFILE
RIGHT CURB PROFILE
CONSTRUCTION PLANS
BENCHMARK
CONSTRUCTION NOTES
IN WITNESS' APPROVAL DATE
CALL BEFORE YOU DIG 456-8200
STORHAUG ENGINEERING
E 9616 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052
WOODLAND ESTATES
WOODLAND PARK DRIVE
STA. 10+00 TO 24+50
SHEET
4 of 18
STREET

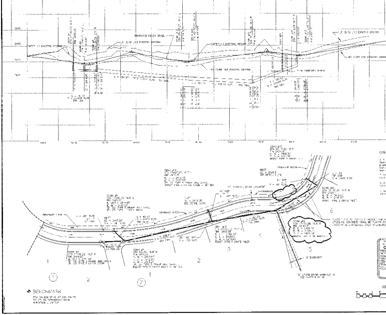


STORHAUG ENGINEERING

E. 9816 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
WOODLAND PARK DRIVE
STA. 24+50 TO 35+04.50

SHEET 5 of 18
STREET



CONSTRUCTION NOTES

1. All items of construction shall be completed within the 1992 Standard Specifications for Road, Bridge, and Municipal Construction as promulgated by the Washington State Department of Transportation and as currently adopted by the Spokane Co. Public Works Department and the 1992 Spokane Co. Road and Utility Standards.

2. Any conflicting utilities shall be relocated prior to construction of roadway drainage facilities.

3. All storm drain manholes shall be 48 inches in diameter unless otherwise indicated.

4. All storm sewer pipe shall be corrugated ... unless otherwise indicated.

SPOKANE COUNTY ENGINEER'S OFFICE
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

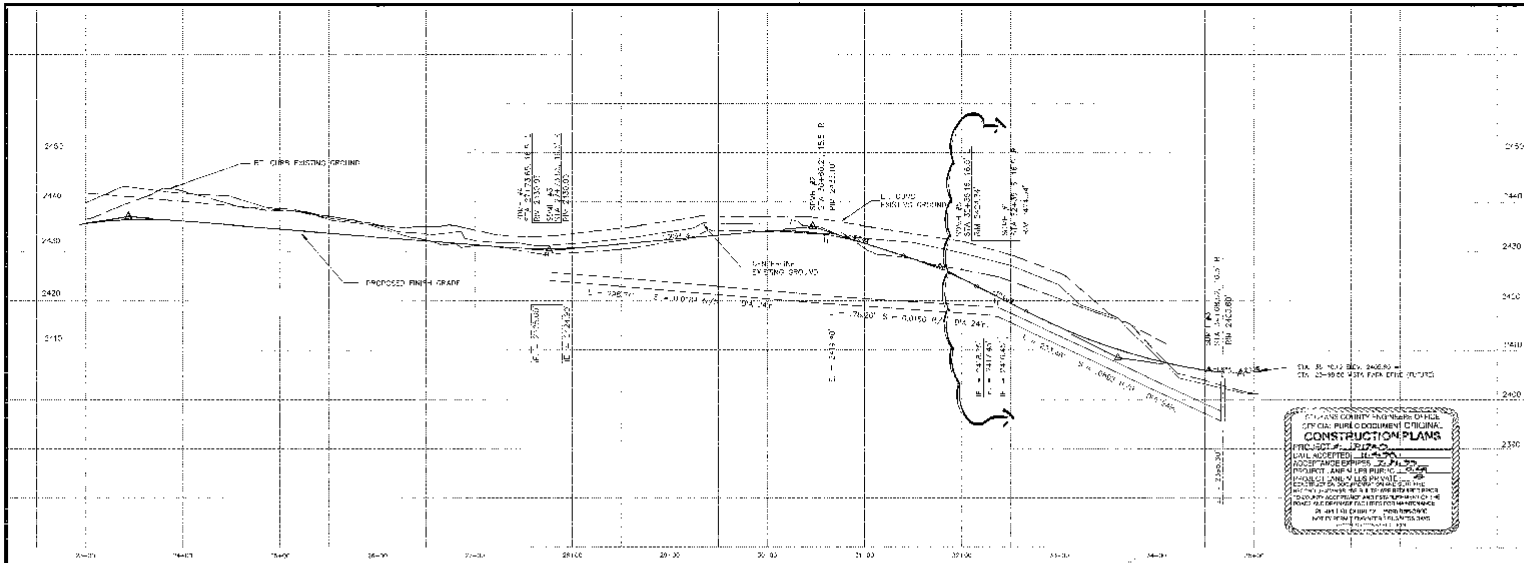
CALL BEFORE YOU DIG 456-8000

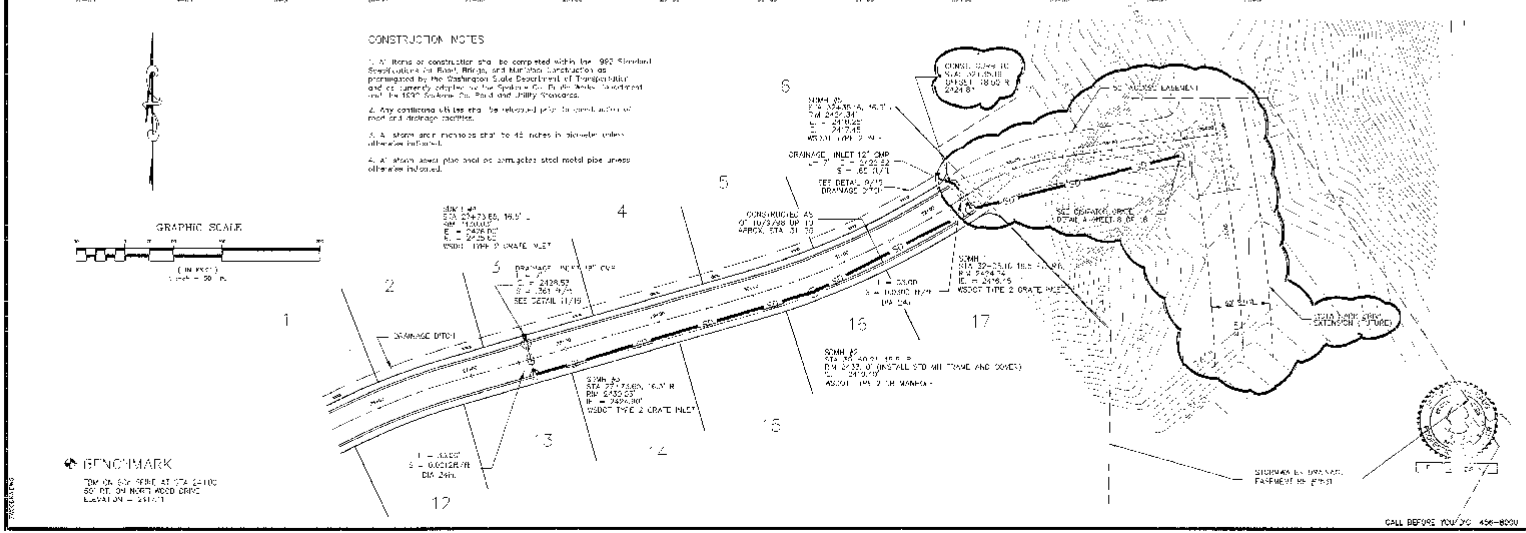
STORHAUG ENGINEERING
E. 9616 MONTGOMERY
SPOKANE, WA 99206
(509) 924-9052

DRAWN BY: JAM
DATE: 5/23/96
SCALE: AS SHOWN

WOODLAND ESTATES
WOODLAND PARK DRIVE
STA. 10+00 TO 20+00

SHEET 6 of 18
DRAINAGE





CONSTRUCTION NOTES

1. All items of construction shall be completed within the 1992 Standard Specifications for Road, Bridge, and Municipal Construction as promulgated by the Washington State Department of Transportation and as currently adopted by the Spokane Co. Public Works Department and the 1992 Spokane Co. Road and Utility Standards.

2. Any conditions which shall be released prior to construction of road and drainage facilities.

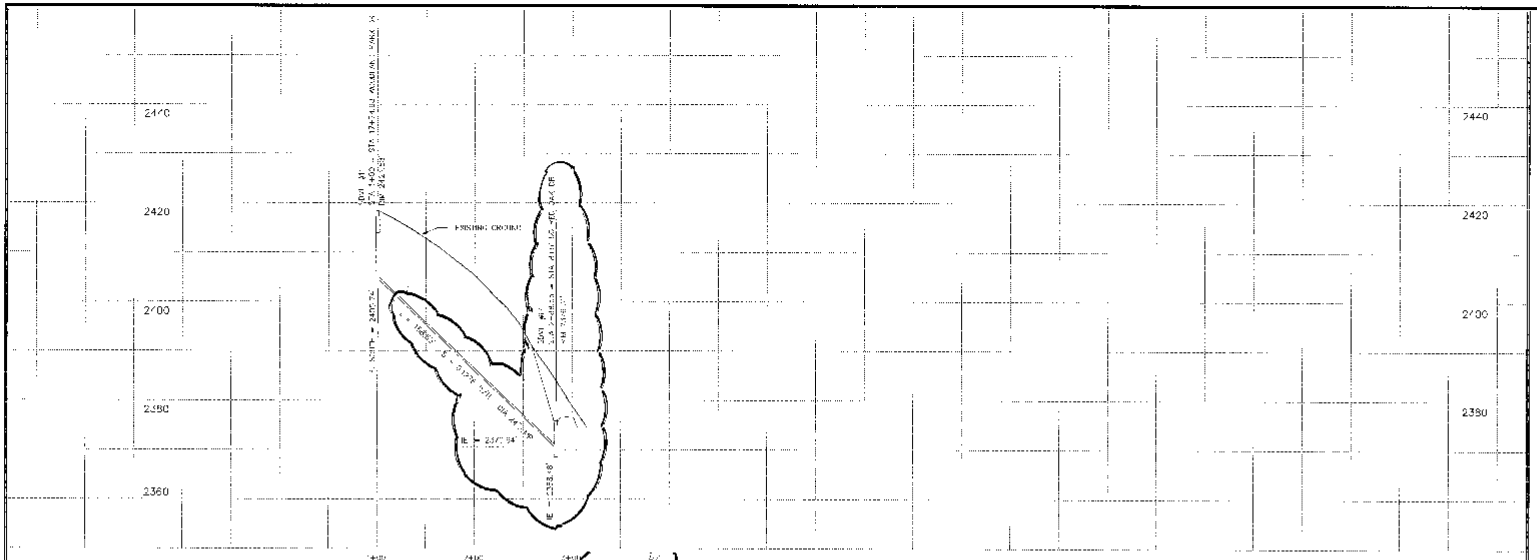
3. All storm sewer manholes shall be 48 inches in diameter unless otherwise indicated.

4. All storm sewer pipe shall be corrugated steel metal pipe unless otherwise indicated.

STORHAUG ENGINEERING
E. 9615 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

WOODLAND ESTATES
WOODLAND PARK DRIVE
STA. 23+00 TO 35+00

SHEET 7 OF 18
DRAINAGE



CONSTRUCTION NOTES

1. All items of construction shall be completed with the 1992 Standard Specifications for Road, Bridge, and Municipal Construction as constructed by the Washington State Department of Transportation as currently adopted by the Spokane Co. Public Works Department in the 1992 Spokane Co. Road and Utility standards.

2. Any conflicting utilities shall be relocated prior to construction of curb and drainage facilities.

BENCHMARK

TEM (A) 604 STILE AT STA 2+40
30' RT. ON ROAD-WOOD 3489
ELEVATION = 2417.1

DEVELOPER'S APPROVAL DATE

SPOKANE COUNTY ENGINEERS CO.
OFFICIAL PUBLIC DOCUMENT ORIGINAL
CONSTRUCTION PLANS
PROJECT #: 2172.9
ACCEPTED: 11-6-98
ACCEPTANCE EXPIRES: 7-31-99
CONSTRUCTION MEASURE PUBLIC: 0-45
DOC RETAINED MEED PRIVATE: 0
CHANGE OR ADDITION MANDATORY
IN CONSTRUCTION MUST BE ADHERED AND EACH
SUCCESSIVE ADDITIONAL INSTRUMENT OF THE
ROAD AND DRAINAGE SYSTEM REQUIRED MAINTENANCE
PERMIT PROVIDED, AND ENTITLE
FOR THE FIRST SUBSEQUENT

PLAN VIEW
N.T.S.

HOOK CLAMP DETAIL
N.T.S.

SECTION A-A
N.T.S.

NOTES
1. DIMENSIONS ARE FOR REFERENCE FROM A SECTION OF DIFFERENT DIMENSIONS
2. METAL PARTS DEPICTED BY HATCH, OTHER PARTS SHADED

IRIS POND OUTLET ENERGY DISAPATOR GRATE
N.T.S.

A-6
14

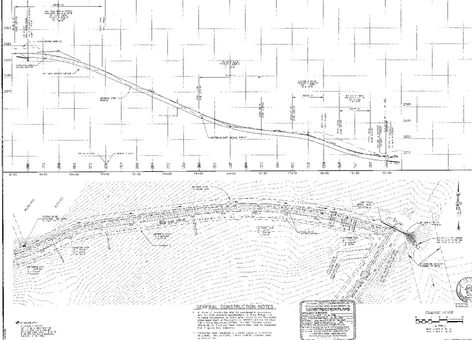
CALL BEFORE YOU DIG 456-8500

STORHAUG ENGINEERING
E. 9516 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

DESIGN WTS GEM
DRAWN JS
CHECKED JS
DATE 7/23/99
SCALE 1" = 10'

WOODLAND ESTATES
STORM SEWER
SDMH #11 TO SDMH #14

SHEET 8 OF 18
DRAINAGE



GENERAL CONSTRUCTION NOTES

1. All items of construction shall be completed in accordance with the [illegible] Standard Specifications for Road, Bridge, and Municipal Construction as prepared jointly by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), the [illegible] Spokane County Standards for Road and Sewer Construction, and the [illegible] Irrigation District standards.

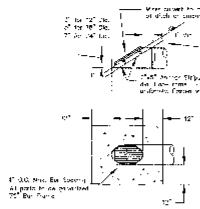
2. Contractor shall coordinate with utility company for location of utilities. Any conflicts [illegible] shall be [illegible] prior to construction.

STORHAUG ENGINEERING
E. 9816 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

DRAWN BY: JSM
CHECKED BY: JS
DATE: 5/28/96
SCALE: AS SHOWN

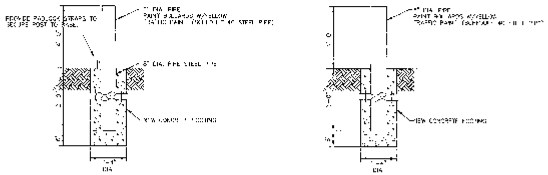
WOODLAND ESTATES
RED OAK ACCESS ROAD
PLAN AND PROFILE

SHEET 9 of 18
DRAINAGE



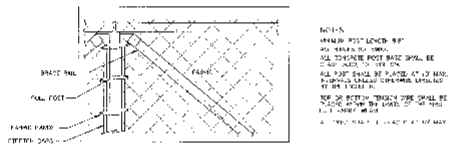
PIPE INLET / TRASH RACK

NOT TO SCALE (1/18)

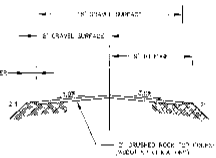


BOLLARD DETAIL

NOT TO SCALE (2/18)



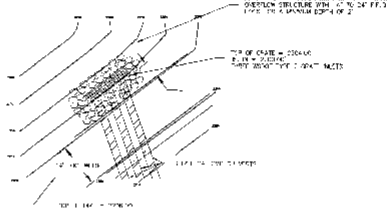
DETAIL 3X



WOODLAND PARK DRIVE

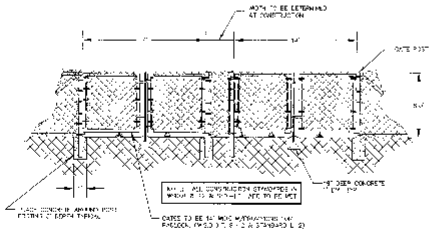
ACCESS EXTENSION

NOT TO SCALE (4/18)



OVERFLOW STRUCTURE DETAIL

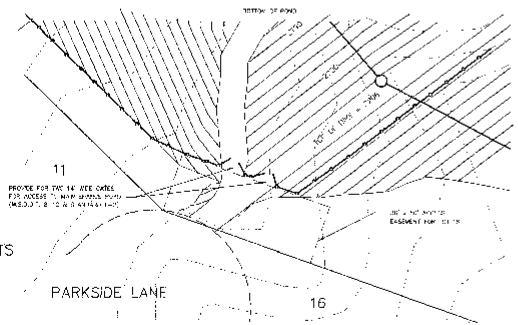
NOT TO SCALE (15/18)



POND FENCE AND GATE DETAIL

WSDOT 8-12 & STANDARD L-2

NOT TO SCALE (12/18)



POND ACCESS ROAD

AND GATE DETAIL

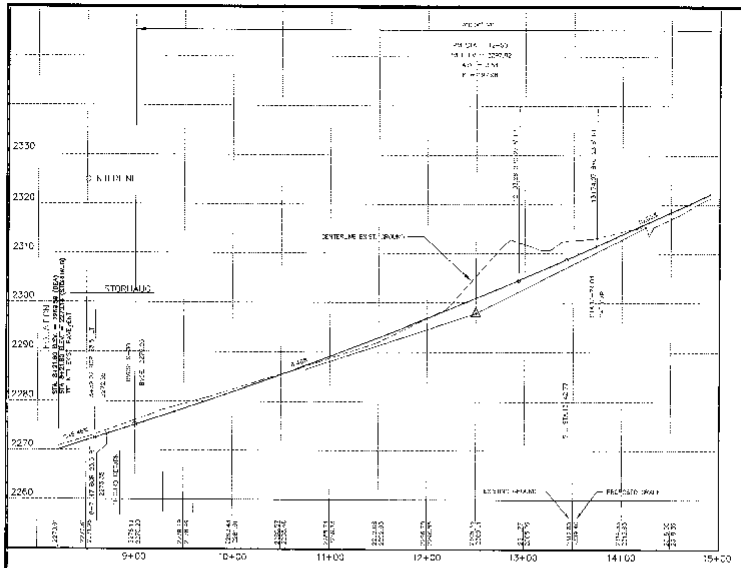
NOT TO SCALE (5/18)

CALL BEFORE YOU DIG 456-8000

STORHAUG ENGINEERING
E. 9515 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

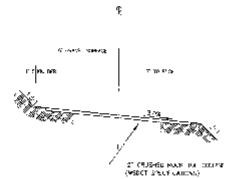
WOODLAND ESTATES
DETAIL SHEET

SHEET
16 OF 18
DETAIL



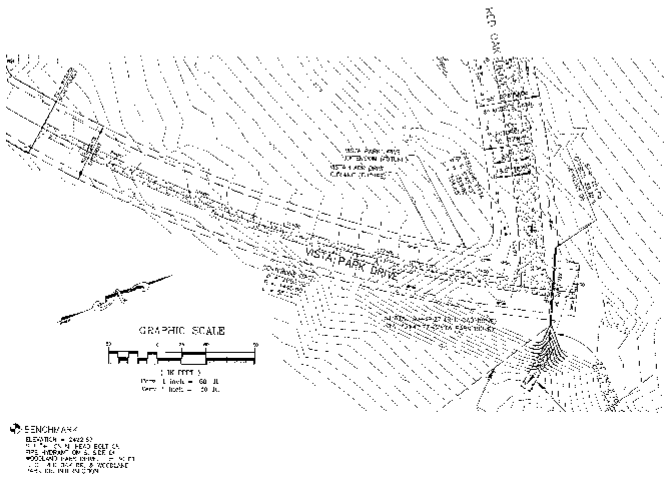
GENERAL CONSTRUCTION NOTES

1. All types of construction shall be completed in accordance with the 1994 Standard Specifications for Road, Bridge, and Municipal Construction as promulgated jointly by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), the 1992 Spokane County Standards for Road and Sewer Construction, and the Pasadena Park Irrigation District standards.
2. Contractor shall coordinate with utility companies for location of utilities. Any conflicting utilities shall be relocated prior to construction.



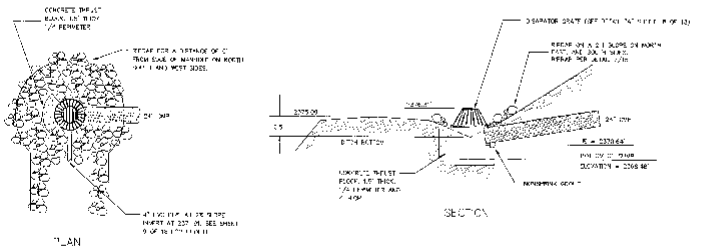
VISTA PARK DRIVE EXTENSION

STA. 8+21.80 TO 14+00 NOT TO SCALE (3)



BENCHMARK

ELEVATION = 2422.57



ENERGY DISAPATOR

NOT TO SCALE (C)

SPOKANE COUNTY ENGINEERS OFFICE OF OFFICIAL PUBLIC DOCUMENT ORIGINAL

CONSTRUCTION PLANS

PROJECT #: 9-17-04

DATE ACCEPTED: 11-5-98

ACCEPTANCE DRAWING: 7-31-99

PROJECT LANE MILES PUBLIC: 0.45

PUBLIC LANE MILES PRIVATE: 0

PROJECT DOCUMENTS: 0 SHEETS

PROJECT DRAWING NO. 0 SHEETS

PROJECT NUMBER: 0 SHEETS

PROJECT NUMBER: 0 SHEETS

CALL BEFORE YOU DIG 456-8000

STORHAUG ENGINEERING
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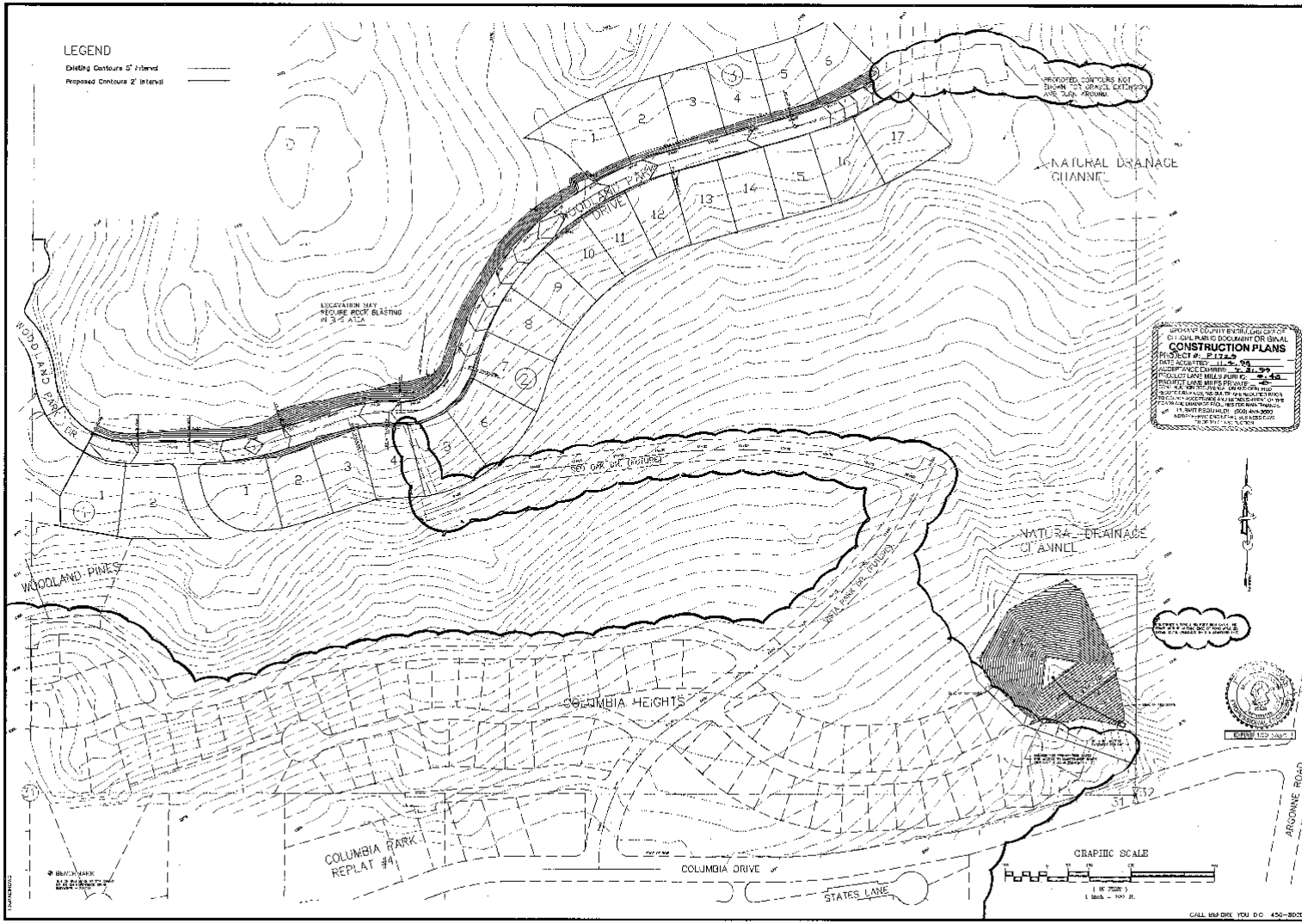
SPOKANE, WA 99206
(509) 924-8052

DRAWN BY: JMM
CHECKED BY: JS
DATE: 8/18/98
SCALE: AS SHOWN

WOODLAND ESTATES
VISTA PARK ACCESS ROAD
AND DETAIL SHEET

SHEET
9A OF 18
DRAINAGE



STORHAUG ENGINEERING
E. 9616 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

DRAWN BY: JJM
CHECKED BY: JS
DATE: 10/3/95
SCALE: AS SHOWN

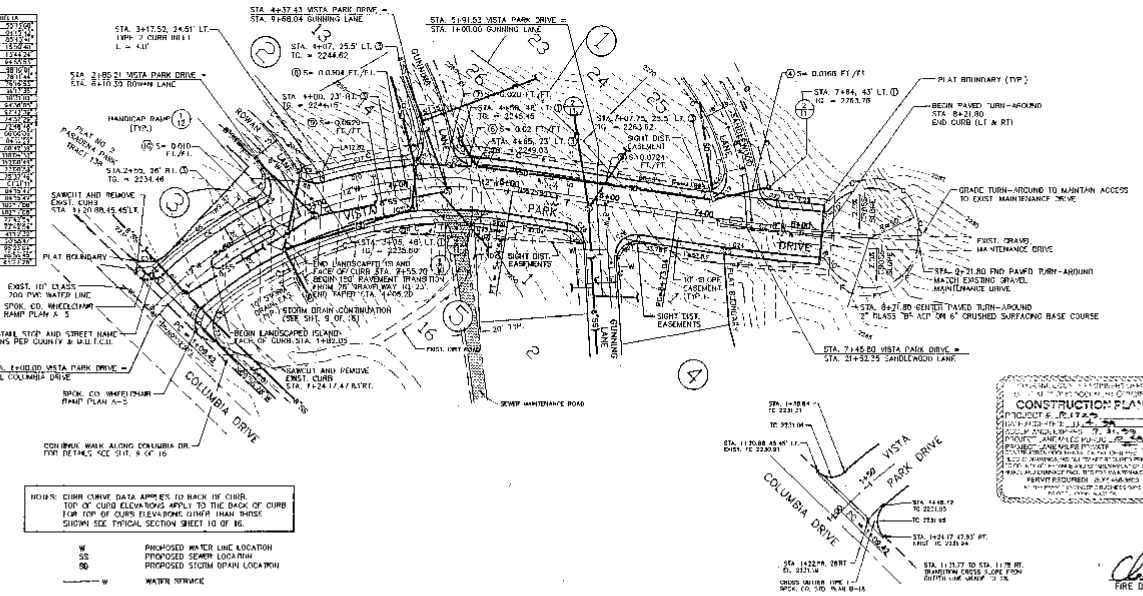
WOODLAND ESTATES
GRADING PLAN

SHEET
13 OF 18
GRADING

Rev.

CURVE TABLE (TOP BACK OF CURB)

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	419.00'	38.12'	21.42'	5°11'09"
C2	200.00'	148.38'	77.44'	42°15'14"
C3	20.00'	18.53'	10.00'	53°03'17"
C4	438.00'	103.71'	53.24'	13°32'49"
C5	180.00'	106.93'	55.04'	34°02'24"
C6	20.00'	32.16'	21.82'	64°53'51"
C7	20.00'	31.27'	20.00'	89°59'59"
C8	20.00'	31.27'	20.00'	89°59'59"
C9	20.00'	33.61'	23.29'	96°14'53"
C10	43.00'	89.17'	61.02'	118°51'35"
C11	43.00'	75.93'	52.00'	101°11'01"
C12	20.00'	31.27'	20.00'	89°59'59"
C13	20.00'	31.27'	20.00'	89°59'59"
C14	20.00'	34.18'	22.80'	97°53'29"
C15	20.00'	29.25'	19.24'	83°47'29"
C16	20.00'	23.42'	14.75'	67°08'18"
C17	43.00'	15.42'	7.77'	20°06'05"
C18	43.00'	53.35'	31.13'	71°06'19"
C19	180.00'	34.00'	17.08'	10°49'19"
C20	20.00'	31.27'	20.00'	89°59'59"
C21	20.00'	31.27'	20.00'	89°59'59"
C22	180.00'	58.00'	29.37'	18°27'00"
C23	20.00'	31.27'	20.00'	89°59'59"
C24	20.00'	31.27'	20.00'	89°59'59"
C25	180.00'	159.00'	85.53'	50°35'45"
C26	20.00'	29.30'	24.68'	83°56'08"
C27	20.00'	35.10'	24.50'	100°56'04"
C28	20.00'	27.17'	16.11'	77°54'04"
C29	20.00'	27.17'	16.11'	77°54'04"
C30	174.00'	189.00'	100.00'	61°72'35"
C31	180.00'	140.98'	73.24'	43°36'47"
C32	20.00'	31.50'	20.17'	90°21'10"
C33	20.00'	31.50'	20.17'	90°21'10"
C34	20.00'	43.37'	28.28'	124°12'28"



DRAINAGE NOTES

1. WSDOT TYPE 2 GRATE INLET, PLAN B-4C
2. SPOK. CO. TYPE 2 FRAME & GRATE, SPOK. CO. TYPE 1 CATCH BASIN
3. SPOK. CO. TYPE 2 FRAME AND GRATE WSDOT TYPE 2 CATCH BASIN – 34" DIA
4. 58 LF. – 15" CPCP.
5. 244 LF. – 30" CMP.
6. 30 LF. – 15" CMP
7. 58 LF. – 30" CMP
8. 48 LF. – 30" CMP.
9. 134 LF. 10" CMP.
10. 56 LF. – 15" CPCP

NOTES: CURB CURVE DATA APPLIES TO BACK OF CURB. TOP OF CURB ELEVATIONS APPLY TO THE BACK OF CURB FOR TOP OF CURB ELEVATIONS OTHER THAN THOSE SHOWN SEE TYPICAL SECTION SHEET 10 OF 16.

W PROPOSED WATER LINE LOCATION
SS PROPOSED SEWER LOCATION
SD PROPOSED STORM DRAIN LOCATION
—W— WATER SERVICE

INTERSECTION DETAIL

CONSTRUCTION PLANS
PROJECT # PL97-29
PERMIT REQUIRED!

FIRE DIST. NO. 9 APPROVAL — DATE

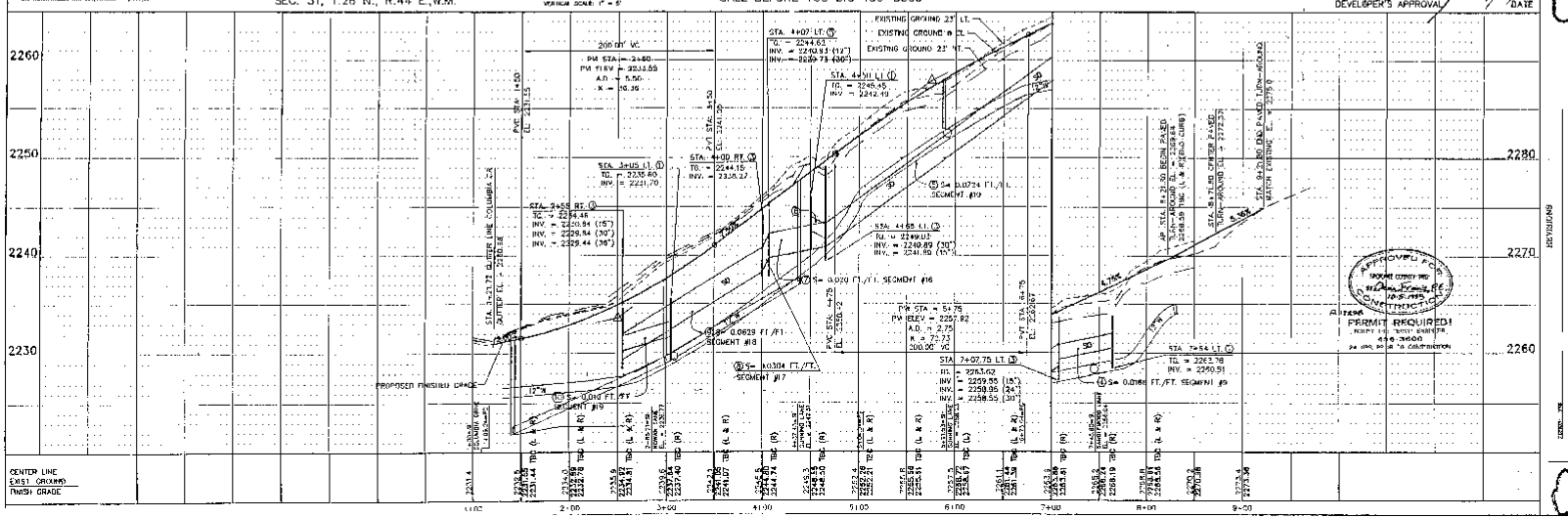
DEVELOPER'S APPROVAL — DATE

BASIS OF ELEVATION
SPOKANE COUNTY DATUM
BENCH MARK: A BRASS CAP AT STA. 2+00 10' RT ON HORTHWOOD DR. ELEVATION = 2417.88

SEC. 31, T.26 N., R.44 E.,W.M.

VISTA PARK DRIVE PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

CALL BEFORE YOU DIG 456-8000



STREET PLAN AND PROFILE
VISTA PARK DRIVE
STA. 1+00 TO 9+21.80
WOODLAND ESTATES – COLUMBIA HEIGHTS

DAVID EVANS AND ASSOCIATES, INC.

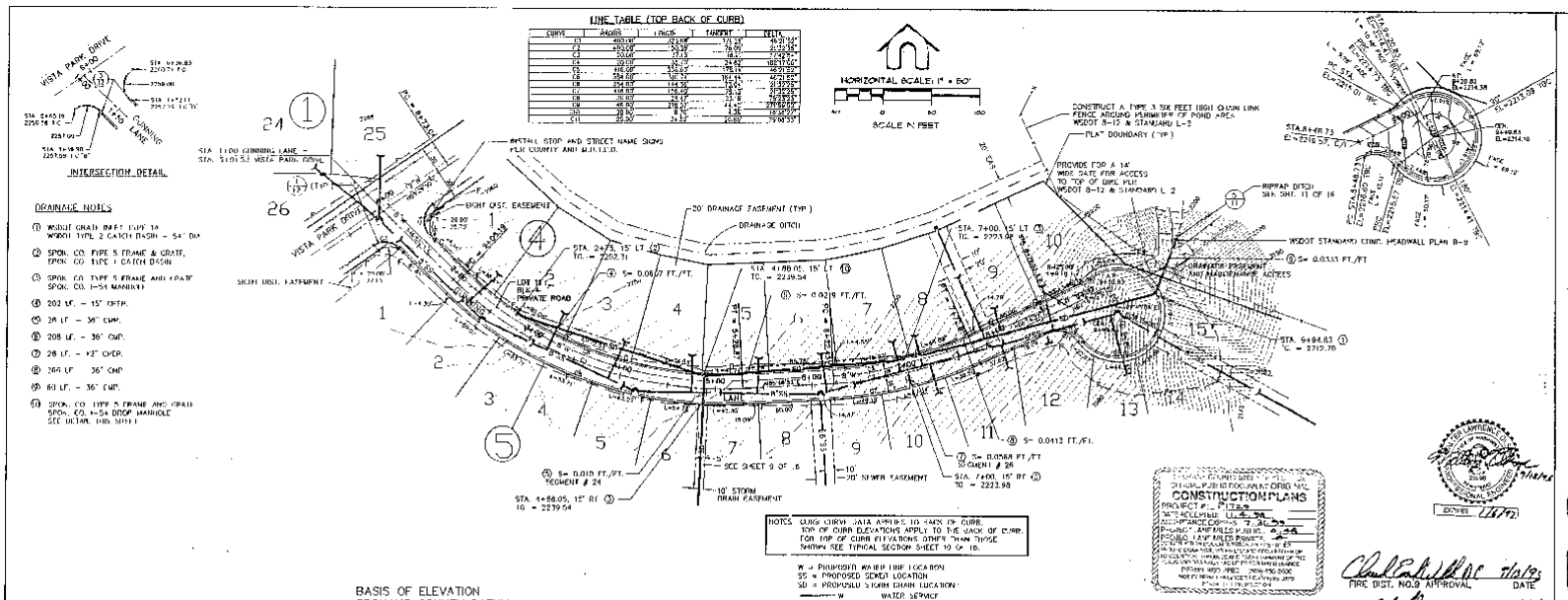
REVISIONS

2 of 16

STREET PLAN AND PROFILE
GUNNING LANE (EAST)
STA.1+00 TO 9+49.83
WOODLAND ESTATES – COLUMBIA HEIGHTS

LINE TABLE (TOP BACK OF CURB)

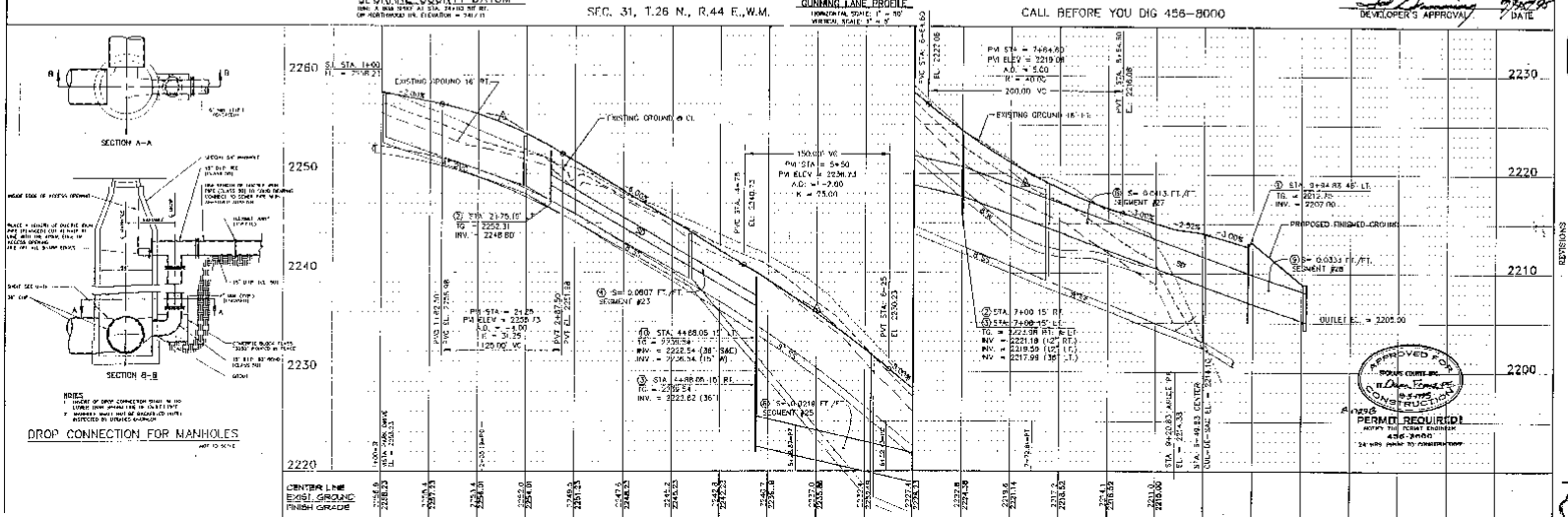
CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	480.00'	32.68'	16.34'	4°01'56"
C2	480.00'	50.39'	25.20'	6°00'58"
C3	20.00'	31.13'	19.71'	89°12'07"
C4	50.00'	26.17'	13.42'	30°00'00"
C5	416.00'	352.67'	188.14'	48°35'02"
C6	554.00'	187.12'	95.14'	19°21'00"
C7	554.00'	144.30'	72.54'	14°55'26"
C8	416.00'	176.42'	89.47'	24°18'25"
C9	50.00'	39.19'	20.48'	44°54'01"
C10	50.00'	278.20'	154.18'	318°52'03"
C11	20.00'	8.70'	4.36'	24°54'27"
C12	20.00'	34.87'	22.02'	99°90'53"



BASIS OF ELEVATION
SPOKANE COUNTY DATUM
SEC. 31, T.26 N., R.44 E.,W.M.

NOTES: CURB CURVE DATA APPLIES TO BACK OF CURB. TOP OF CURB ELEVATIONS APPLY TO THE BACK OF CURB. FOR TOP OF CURB ELEVATIONS OTHER THAN THOSE SHOWN SEE TYPICAL SECTION SHEET 10 OF 16.

W = PROPOSED WATER LINE LOCATION
SS = PROPOSED SEWER LOCATION
SD = PROPOSED STORM DRAIN LOCATION
W WATER SERVICE



REVISIONS

DAVID EVANS AND ASSOCIATES, INC.

11-5.3.2 NR7.31.32: Buffer Zone

Code: (BZ) Symbol: —BZ—

Definition and Purpose An undisturbed area or strip of natural vegetation or an established suitable planting that will provide a living filter to reduce soil erosion and runoff velocities.

Conditions Where Practice Applies

- Natural buffer zones are used along streams and other bodies of water that need protection from erosion and sedimentation. Vegetative buffer zones can be used to protect natural swales and incorporated into natural landscapes of an area.
- Leave all unstable steep slopes in natural vegetation.
- Fence or flag clearing limits and keep all equipment and construction debris out of the natural areas.
- Keep all excavations outside the dripline of trees and shrubs.
- Do not push debris or waste soil into the buffer zone area because it will cause damage from burying and smothering.

BUFFER ZONE (BZ)

11-5.4.1 NR7.31.35: Stabilized Construction Entrance and Tire Wash

Code: (CE) Symbol: —||

Definition A temporary stone-stabilized pad located at points of vehicular ingress and egress on a construction site.

Purpose

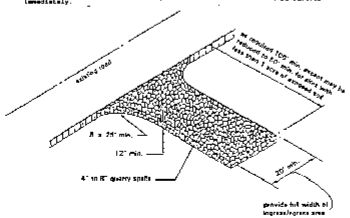
To reduce the amount of mud, dirt, rocks, and transported onto public roads by motor vehicles or runoff by constructing a stabilized pad of rock spalls at entrances to construction sites and washing of tires during egress.

Conditions Where Practice Applies

- Whenever traffic will be leaving a construction site and moving directly onto a public road or other paved areas.

Maintenance

- The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 2-inch stone, as conditions demand, and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately.



STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH (CE)

11-5.4.3 NR7.31.37: Permanent Seeding and Planting

Code: (PS) Symbol: —PS—

Definition The establishment of perennial vegetative cover on disturbed areas.

Purpose

To establish permanent vegetation (such as grasses, legumes and trees and shrubs) as rapidly as possible to prevent soil erosion by wind or water, and to improve wildlife habitat and site aesthetics.

To provide pollutant filtration (infiltration) in vegetation-lined channels and to establish constructed wetlands as required (see NR7.34.10 in Chapter 11-4 and NR.05 in Chapter 11-5).

Conditions Where Practice Applies

- Graded, final graded or cleared areas where permanent vegetative cover is needed to stabilize the soil.
- Areas which will not be brought to final grade for a year or more.
- Vegetation-lined channels.
- Retention or detention ponds as required.

Provide fertilizer and lime and seed according to Wisconsin Wildlife and guidelines, according to detailed soil analysis of site conditions. Provide seed mixture consisting of grass species and percentages as follows:

25 percent Dry Perennial Rye

10 percent Brown Top Millet

40 percent Creeping Red Fescue

15 percent Redtop Sensitive Bluegrass

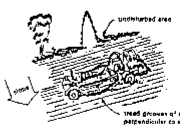
Provide mulch consisting of straw over seed and fertilizer in accordance with Table:

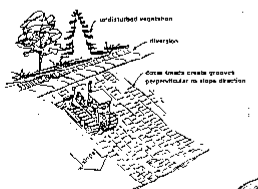
Grass seed mixture: 40 lbs per acre

Fertilizer: 10-10-10 (Mixed fertilizer) 200 lbs per acre

All seeding of slopes shall be done in accordance with WDOT Standard Specifications

Permanent seeding shall occur between the dates of August 15 to November 15. Any slope that has 10 vertical or steeper exposed for more than 30 days shall have a stage method 2 (see 2.0000) applied. Mulch shall be anchored into the soil by disking or other methods as approved by the Inspector of Road Department. Erosion control shall be per WDOT specifications (sections 8.10.3).





PERMANENT SEEDING (PS)

11-5.4.4.6 NR7.31.39: Surface Roughening

Code: (SR) Symbol: —SR—

Definition Provision of a rough soil surface with horizontal depressions created by operating a tiller or other suitable equipment on the contour or by leaving slopes in a roughened condition by not fine grading them.

Purpose

To aid in establishment of vegetative cover, reduce runoff velocity, increase infiltration, and provide for sediment trapping.

Conditions Where Practice Applies

- All slopes steeper than 3:1, and greater than 5 vertical feet, require surface roughening either during grading, grooving, furrowing, or tracking if they are to be stabilized with vegetation.

APPROVED FOR
Racine County Inc.
CONSTRUCTION
P-749
PERMIT REQUIRED!
BEFORE THE START OF WORK
ASK JOHN
TO SEE WHERE IS CONSTRUCTION

SURFACE ROUGHENING (SR)

SPECIFICATIONS

All work disturbed on site to the zone permanently shall have vegetation restored as by hydroseeding, with the following specifications.

Provide fresh, vigorous, undamaged seed complying with the requirements for purity and germination contained in Official Seed Analysis of North America. Provide seed mixture composed of grass species and percentages by weight as follows:

Bluetop Wheatgrass 3 lbs/acre
Tall Fescue 3 lbs/acre
Perennial Rye Grass 3 lbs/acre

Apply Soil Conditioner for Hydroseed at a rate of 1,500 lbs/acre. Soil conditioner to be added to Soil Guard and applied in a single application. Apply soil conditioner in accordance with the Soil Guard application for the above specified products.

All seeding of slopes shall be done in accordance with the WDOT "1988 Spec Publication Section 8.10"

BIOENGINEERING OF STEEP SLOPES (BSP)

11-5.1.1 NR7.31.36: Preserving Natural Vegetation

Code: (VG) Symbol: —VG—

Definition Minimizing exposed soils and consequent erosion by allowing only where construction will occur.

Purpose

To reduce erosion by preserving natural vegetation wherever practicable.

Conditions Where Practice Applies

- Natural vegetation should be preserved on steep slopes, near perennial and intermittent watercourses or swales, and on building sites in wooded areas.

PRESERVE NATURAL VEGETATION (VG)

11-5.3.4 NR7.31.33: Pipe Slope Drains

Code: (PS) Symbol: —PS—

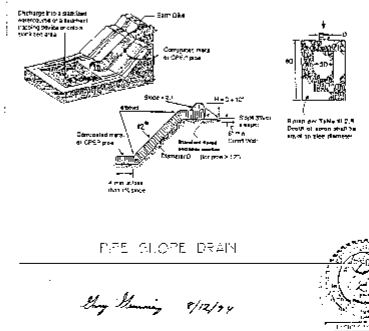
Definition A pipe extending from the top to the bottom of a cut or fill slope and discharging into a stabilized water course as a sediment trapping device or into a stabilization area.

Purpose

To carry concentrated runoff down steep slopes without causing gullies, channel scouring, or saturation of slide-prone soils.

Conditions Where Practice Applies

- Where a temporary (or permanent) measure is needed for conveying runoff down a slope without causing erosion.



PIPE SLOPE DRAIN (PS)

Gary Manning 8/12/94

PROJECT NO.
DATE
DRAWN BY
CHECKED BY
STATE OF WISCONSIN
EXPIRES JUN 05

METRO ENGINEERING
Northwood Properties, Inc

Woodland Estates
Erosion and Sedimentation Plan

SHEET 18 OF 18

EROSION

INTERCEPTOR DIKE AND SWALE

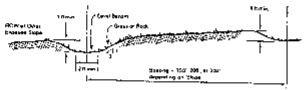
Code: (IDS)

Definition: A ridge of compacted soil or a swale with vegetative lining located at the top or base of a sloping disturbed area.

Purpose: To intercept storm runoff from drainage areas above unprotected slopes and direct it to a stabilized outlet.

Conditions Where Practice Applies:

- Where the volume and velocity of runoff from exposed or disturbed slopes must be reduced. When an interceptor dike/swale is placed above a disturbed slope, it reduces the volume of water reaching the disturbed area by intercepting runoff from above (Figures 12.5.17a,b). When it is placed horizontally across a disturbed slope, it reduces the velocity of runoff flowing down the slope by reducing the distance that the runoff can flow directly downhill.



CHECK DAM

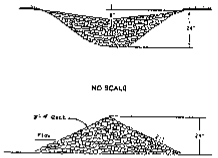
Code: (CD)

Definition: Small dam constructed across a swale or drainage ditch.

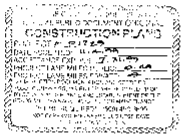
Purpose: To reduce the velocity of concentrated flows, reducing erosion of the swale or ditch, and to slow water velocity to allow retention of sediments.

Conditions Where Practice Applies:

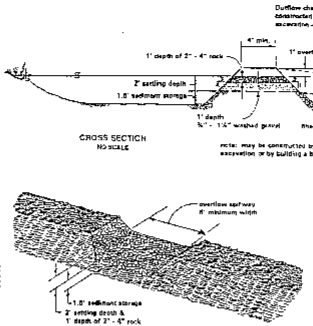
- Where temporary channels or permanent channels are not yet vegetated, channel lining is unbearable and, therefore, velocity checks are required.
- In small open channels which drain 10 acres or less. No check dam may be placed in streams (unless approved by the State Departments of Fish/Game or Wildlife as appropriate). Other permits may be necessary.
- Check dams in association with sump work area effectively act slowing flow and retaining sediment.



B. Rock Check Dam



SEDIMENT TRAP



RIPRAP PROTECTION

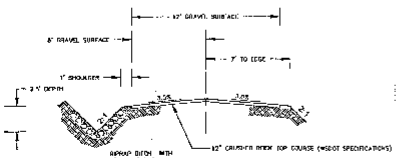
Code: (RR)

Definition: A permanent, erosion-resistant ground cover of large, loose, angular stone.

Purpose: To slow the velocity of concentrated runoff or to stabilize slopes with complex problems and/or non-cohesive soils by placement of large, loose, angular stone.

Conditions Where Practice Applies:

- Soil-water interface, where the soil conditions, water turbulence, water velocity, and expected vegetative cover, are such that the soil may erode under the design flow conditions.



FILTER FENCE

Code: (FF)

Definition: A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. The filter fence is constructed of stakes and synthetic filter fabric with a rigid wire fence backing where necessary for support.

Purpose:

1. To intercept and detain small amounts of sediment under sheet flow conditions from disturbed areas during construction operations in order to prevent sediment from leaving the site.
2. To decrease the velocity of sheet flows.

Conditions Where Practice Applies:

- Filter fences must be provided just upstream of the principal discharge of runoff from a site, before the flow becomes concentrated. They may also be required:
  1. Below disturbed areas where runoff may occur in the form of sheet and rill erosion, whenever runoff has the potential to impact downstream resources.
  2. Perpendicular to minor swales or ditch lines for constricting drainage areas up to one acre in size.

The filter fabric shall be purchased in a continuous roll cut on the length of the barrier to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6 inch overlap, and both ends securely fastened to the post.

Posts shall be spaced a maximum of 6 feet apart and driven securely into the ground a minimum of 20 inches (where practicable).

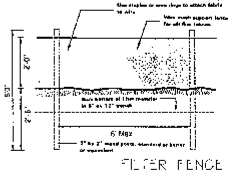
A trench shall be excavated approximately 8 inches wide and 12 inches deep along the line of posts and upslope from the barrier. The trench shall be constructed to follow the contour.

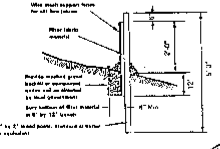
When silt fill filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of 4 inches and shall not extend more than 36 inches above the original ground surface.

Silt film filter fabric shall be wired to the fence, and 20 inches of the fabric shall extend into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees. Other types of fabric may be stapled to the fence.

When extra-strength or reinforced fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of overlapping these stiffer fabric.

Local governments may specify the use of properly compacted native material. In many instances, this may be the preferred alternative because the soil forms a more continuous contact with the trench below, and use of native materials





GRAVEL FILTER BERM

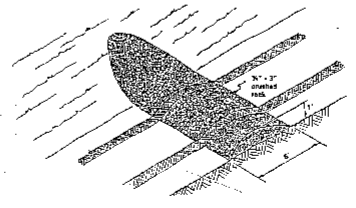
Code: (GFB)

Definition: A gravel berm constructed on rights-of-way or traffic areas within a construction site.

Purpose: To retain sediment from traffic areas by using a filter berm of gravel or crushed rock.

Conditions Where Practice Applies:

- Where a temporary measure is needed to retain sediment from rights-of-way or in traffic areas on construction sites.



APPROVED FOR CONSTRUCTION
SPOKANE COUNTY ENG.
PERMIT REQUIRED!
456-3600
24 HRS. PRIOR TO CONSTRUCTION

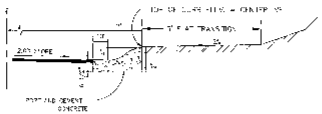
Hay Henning 3/12/94

METRO ENGINEERING
Northwood Properties, Inc

Woodland Estates
Erosion and Sedimentation Plan

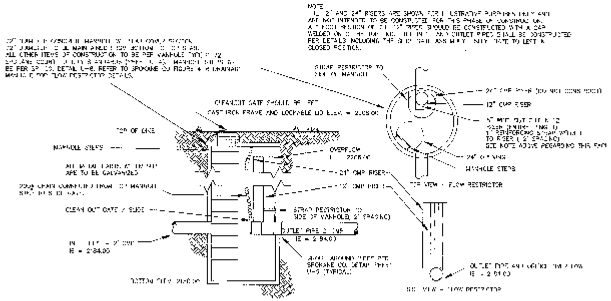
SHEET 18 OF 18

EROSION



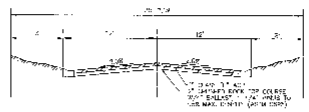
CURB DETAIL (1/15)

NOT TO SCALE



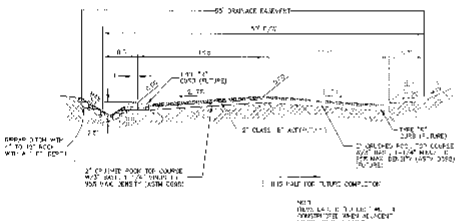
FLOW RESTRICTOR M.H. (2/5)

NOT TO SCALE



DALKE LANE
PRIVATE ROAD SECTION – STA 24+92.75 (3/5)

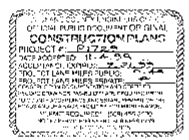
NOT TO SCALE

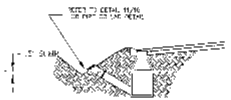


RED OAK DRIVE (FUTURE)
ROAD DETAIL (4/15)

NOT TO SCALE

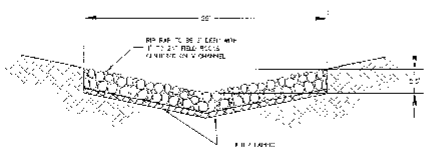
SEEDING SPECIFICATIONS (5/15)





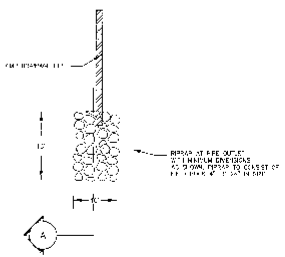
PIPE INLET (6/15)

NOT TO SCALE



RIPRAP DETAIL (7/15)

NOT TO SCALE

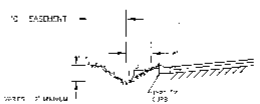


RIPRAP DETAIL (8/15)

NOT TO SCALE

SIDE VIEW (A)

NOT TO SCALE



V DITCH DETAIL (9/15)

NOT TO SCALE

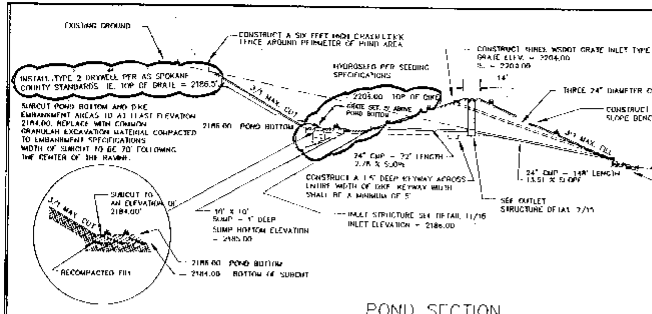
CALL BEFORE YOU DIG 456-8000

STORHAUG ENGINEERING
E. 9616 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

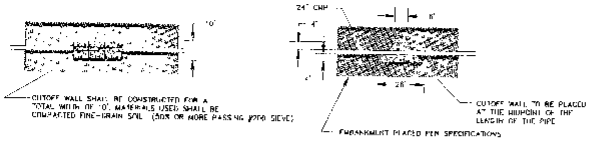
DRAWN BY: JAN
CHECKED BY: JG
DATE: 10/25/99
SCALE: NO SCALE

WOODLAND ESTATES
DETAIL SHEET

SHEET
15 OF 18
DETAIL



POND SECTION (A)



CUTOFF WALL (C)

CONSTRUCTION NOTES

1. All items of construction shall be completed within the 1992 Standard Specifications for Road, Bridge, and Municipal Construction as promulgated by the Washington State Department of Transportation and as currently adopted by the Spokane Co. Public Works Department and the 1992 Spokane Co. Road and Utility Standards.

2. Any conflicting utilities shall be extricated prior to construction of road and drainage facilities.

3. Detention pond earthwork shall be completed per the recommendations of Hydrol Consultants report dated June 2, 1994 to include construction of seepage blanket interface between the toe of the dike embankment. Contractor shall retain Hydrol Consultants during construction for observation and determine that recommendations are implemented.

4. Construct a 1.5 foot deep keyway at the interface of the dike embankment with the native material. Keyway to be scated horizontally directly below top of dike.

5. Embankment shall be place in lifts of 12 inches with a minimum density of 92% of the maximum density as determined by ASTM D-1557 test method. Moisture content during placement shall be plus or minus 3 percent of optimum.

6. All cut areas shall be compacted to some specification as embankment, covered with 6 inches of native topsoil and sown with a drought green seed mixture.

7. Drain pipes shall be have a cutoff collar constructed per detail at midpoint of pipe.

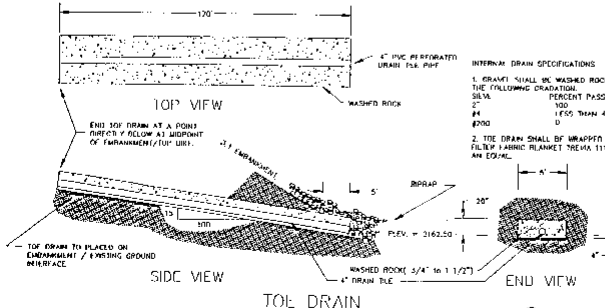
8. Fill shall be placed in horizontal compacted lifts. The surface between each lift shall not be greatly smooth. The upstream and downstream face of the embankment shall be overfilled and cut to grade after completion of compaction.

9. Topsoil should be removed to a depth of 8" and stockpiled prior to construction. The subgrade should be scarified to a depth of 6" and recompacted prior to placement of embankment.

10. The contractor shall employ a soils consultant and engineer, approved by the Owner, to determine optimum desired moisture content and to implement the geotechnical requirements shown in the plans. Compaction tests shall be taken at a minimum of 4 locations on every 12" lift of embankment construction, and line prepared subgrade under the pond basin. The soils consultant shall keep written records of all compaction tests performed. Written copies of the test results shall be provided to Spokane county and the Owner within three (3) working days of when the tests are performed.

STAKING COORDINATES

LOCATION	COORDINATES
D	N 7688.8424 E 12424.0245
E	N 7678.1121 E 12489.8869
F	N 7671.7716 E 12487.0688
G	N 7625.1593 E 12438.1829
H	N 7619.5272 E 12418.2070
I	N 7639.4923 E 12435.0403
J	N 7628.6689 E 12440.6219
K	N 7573.7008 E 12484.7271
L	N 7544.8578 E 12432.0295
M	N 7490.8157 E 12616.4572
N	N 7497.7804 E 12678.4177
O	N 7548.6986 E 12561.9741



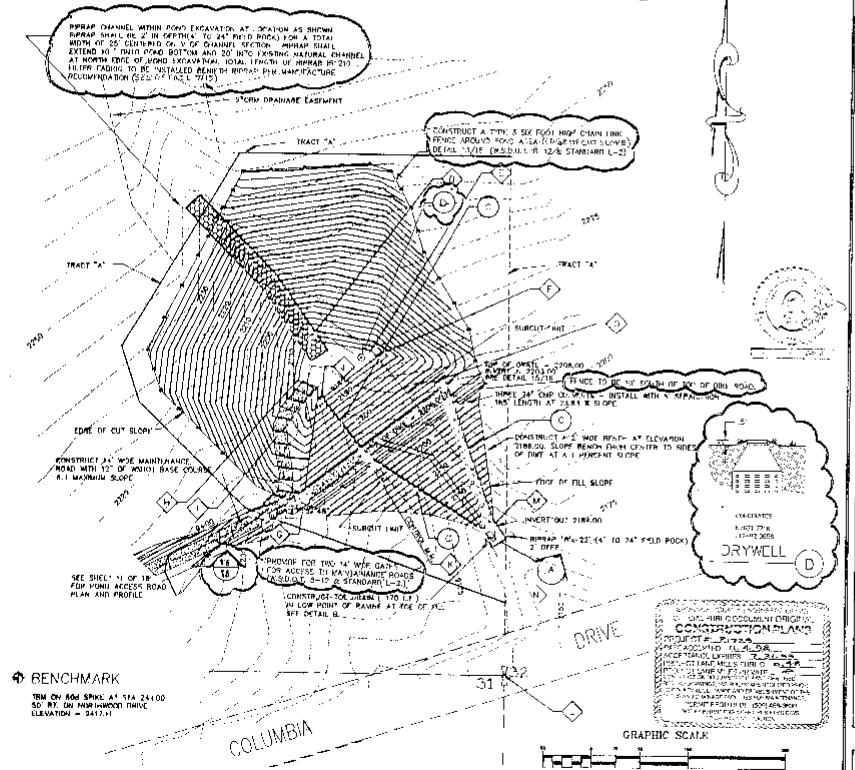
INTERNAL DRAIN SPECIFICATIONS

1. GRAVEL SHALL BE WASHED ROCK MEETING THE FOLLOWING GRADATION.

SIEVE	PERCENT PASSING
2"	100
#4	LESS THAN 40
#200	0

2. TOE DRAIN SHALL BE WRAPPED WITH A FILTER FABRIC BLANKET (REMA 1114 OR AN EQUAL.

TOE DRAIN (R)



BENCHMARK

TBM ON 8dd SPIKE AT STA 24+00 SD RT. ON NORTHWOOD DRIVE ELEVATION = 2417.41

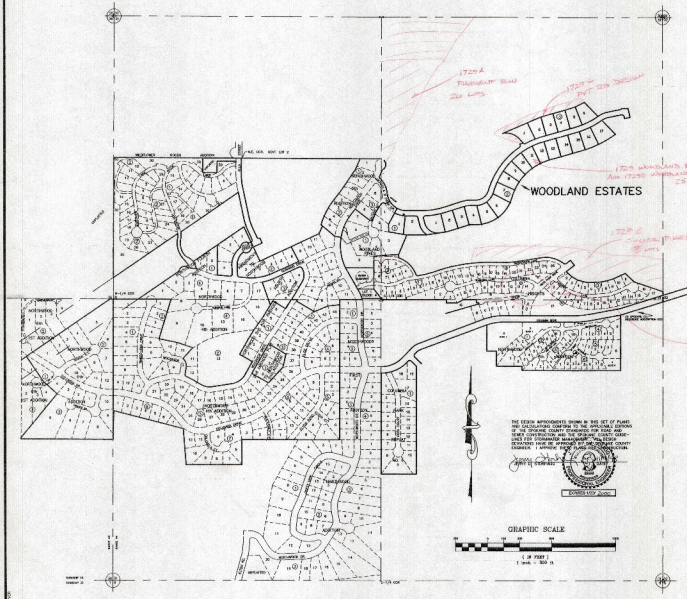
DRAWN BY:	
CHECKED BY:	
DATE:	
SCALE:	

STORHAUG ENGINEERING
E. 9818 MONTGOMERY
SPOKANE, WA 99206
(509) 924-8052

Woodland Estates
Detention Pond

SHEET 12 of 18

DRAINAGE



VICINITY MAP

APPROVED COUNTY COMMISSIONERS
OFFICIAL INSTALLATION COMPANY DOCUMENT
CONSTRUCTION PLANS
MAY BE USED FOR CONSTRUCTION
DATE ACCEPTANCE: 11-2-98
ACCEPTANCE EXPIRES: 11-31-99
PROJECT LAND USE ID: 1729
PROJECT ENGINEER: STORHAUG ENGINEERING
LOTS 70-79 NOT RECOMMENDED FOR CONSTRUCTION
PRIOR TO CONSTRUCTION OF ANY IMPROVEMENTS THE OWNER OR HIS AGENT MUST OBTAIN A PERMIT FROM THE PLANNING DEPARTMENT
PRIOR TO CONSTRUCTION OF ANY IMPROVEMENTS THE OWNER OR HIS AGENT MUST SUBMIT PLANS FOR WATER AND SEWER APPROVAL
ROAD TYPE AND DRAINAGE CONSIDERATIONS MUST BE CONSTRUCTED

SHEET INDEX

1	TITLE
2	PLAT DRAWING
3	OVERALL FACILITIES DRAWING
4	WOODLAND PARK DRIVE STA 10+00 TO STA 24+50
5	WOODLAND PARK DRIVE STA 24+50 TO 35+04.50
6	WOODLAND PARK DRIVE STA 10+00 TO STA 23+00
7	WOODLAND PARK DRIVE STA 23+00 TO 35+00
8	~~DRAINAGE DITCH — RED OAK DRIVE~~
9	DRAINAGE DITCH — RED OAK DRIVE
9A	DRAINAGE DITCH — RED OAK DRIVE
10	VISTA PARK DRIVE STREET PLAN & PROFILE
	~~VIDEA SHEET 2 OF 18~~
11	GUNNING LANE (EAST) STREET PLAN & PROFILE
	~~GUNNING LANE (EAST) — RENAMED AS PARKSIDE LANE~~
12	~~WOODLAND ESTATES GRADING PLAN~~
13	WOODLAND ESTATES GRADING PLAN
14	WOODLAND ESTATES EROSION PLAN
15	DETAIL SHEET
16	DETAIL SHEET
17	DETAIL SHEET
18	DETAIL SHEET

* D.E.A. = DAVID EVANS & ASSOCIATES

CLOUDED INFORMATION REPRESENTS DESIGN CHANGES WHICH AMEND THE PREVIOUS 1994 APPROVED CONSTRUCTION PLANS.

GENERAL NOTES

1.GENERAL: All construction methods and materials shall be in accordance with the Standard Specifications for Road, Bridge, and Municipal Construction as jointly promulgated by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association, 1991 Edition, and the Supplemental Specifications to the Standard Specifications, which shall be as shown in the 1993 Spokane Co. Standards for Road and Utility Construction. These notes and specifications are schematic and are not intended to depict all details of the work required. The contractor shall be responsible to familiarize himself with the details of the work required by the plans, the Spokane County Road Standards, and shall coordinate with Spokane County to develop traffic control plan requirements. The contractor shall be responsible to obtain all required permits. Pavement patching requirements shall be as determined by the Spokane County Road Department.

2. PIPE: All storm sewer pipe shall be CMP in accordance with the referenced Standard Specifications.

3. TRENCH EXCAVATION AND BACKFILL: All trench excavation and backfill shall conform to W.S.D.O.T. Section 7.17.3(1)A. All bedding shall consist of approved bedding material placed around the pipe and backfilled as per W.S.D.O.T. Section 7.17.3(1)B. Compaction of backfill in roadway shall be performed to meet Spokane County Engineer requirements.

4. MANHOLES: Shall be in accordance with details as adopted by the Spokane County. Catch Basins shall be Type 1 for baselines 3' or less in height and Type 2 (PROST standard) for baselines with a height over 3'.

5. The contractor shall install the erosion control facilities, as shown in these plans, prior to disturbing the site or commencing any work on the site. During construction, the contractor is responsible to maintain the erosion control facilities throughout the duration of construction. The erosion control facilities shall be removed only after the threat of erosion or generating silt-laden runoff is past.

DEVELOPER'S APPROVAL

The undersigned Developer or his assigns agree to construct improvements in accordance with this plan.

Developer's Approval — Date: 11-2-98

CALL BEFORE YOU DIG 456-8002

1727 Remove

SE

STORHAUG ENGINEERING
L.L. BYE, MONTGOMERY
SPOKANE, WA 99206
(509) 924-9462

DRAWN BY: JAB
CHECKED BY: JB
DATE: 10/02/98
SCALE: 1" = 300'

WOODLAND ESTATES
STREET & DRAINAGE
IMPROVEMENTS

SHEET
1 OF 18
COVER